

CLAIMS:

1. An antenna characterized by an antenna element (11), an adjacent flexible metal electrode (17A) and control means (22) for effecting a dimensional change of the antenna element and/or between the antenna element and the flexible metal electrode so as to adjust a resonance frequency of the antenna and tune the antenna for operation at different frequencies.
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2. An antenna according to claim 1, characterized in that the flexible metal electrode comprises a ground plane (17).
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3. An antenna according to claim 1 or 2, characterized in that the flexible metal electrode comprises a membrane (17A) overlain by the antenna element (11) and the control means comprises means (22) for effecting a change in spacing between the antenna element and 15 flexible metal electrode.
4. An antenna according to claim 1, 2 or 3, characterized in that the means for effecting dimensional change comprises circuitry for applying a potential difference (V_c) between the flexible metal electrode and a second electrode so as to deflect the flexible metal electrode 20 electrostatically relative to the second electrode.
5. An antenna according to claim 1, 2, 3 or 4, characterized in that the means for effecting a dimensional change comprises means for applying a pneumatic force upon the flexible metal electrode (17A) so as to deflect the electrode relative to the antenna element.
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6. An antenna according to claim 1, 2, 3 or 4, characterized in that the means for effecting a dimensional change comprises a means for applying thermal heating or cooling to effect thermal expansion or contraction and induce bending of the flexible metal electrode (17A) so as to deflect the electrode relative to the antenna element.
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7. An antenna according to any one of claims 1 to 6, characterized in that the flexible metal electrode (17A) comprises a single metal film.
8. An antenna according to any one of claims 1 to 6, characterized in that the flexible 35 metal electrode (17A) comprises a laminate fabricated from layers of conducting metal and/or non-conducting dielectric.

9. An antenna according to claim 3 or 4, characterized in that the flexible metal electrode (17A) comprises at least one conductive coating on a surface of a flexible insulating/dielectric film.

5 10. An antenna according to any one of claims 1 to 9, characterized in that the flexible metal electrode (17A) is perforated.

11. An antenna according to any one of claims 1 to 10, characterized in that the flexible metal electrode is connected to a support by a plurality of hinge portions.

10 12. An antenna according to claim 11, characterized in that the flexible metal electrode comprises a medial portion and at least two integral hinge portions whereby the medial portion is attached to the support, the hinge portions flexing to allow movement of the medial portion relative to the antenna.

15 13. An antenna according to claim 11 or 12, characterized in that the medial portion is rectangular and the hinge portions are at opposite sides thereof.

14. An antenna according to claim 11, 12 or 13, characterized in that the hinge portions
20 are corrugated.

15. An antenna according to any one of claims 1 to 14, characterized in that the flexible metal electrode (17A) is non-planar.

25 16. An antenna according to claim 15, characterized in that at least a medial portion of the flexible metal electrode (17A') is corrugated.

17. An antenna according to claim 15, characterized in that the flexible metal electrode (17A') has a flat middle portion (23) and corrugated marginal portion (24).